

CLAIMS

1. An apparatus, comprising:
a housing;
a keyboard device disposed in the housing; and
an actuator coupled to the housing;
the actuator configured to receive a control signal responsive to a key entry on the keyboard device and output a force to the housing that effects haptic feedback.
2. An apparatus as recited in claim 1, wherein the haptic feedback includes an inertial force that is substantially perpendicular to a surface on which the housing rests.
3. An apparatus as recited in claim 2, wherein the inertial force is output by moving an inertial mass.
4. An apparatus as recited in claim 3, wherein the actuator is coupled to the housing by a flexure and moves as the mass.
5. An apparatus as recited in claim 2, further comprising at least one compliant element coupled to the housing and adapted to support the housing on the surface.
6. An apparatus as recited in claim 1, wherein the housing includes a first portion coupled to a second portion, the haptic feedback causing the first portion to move with respect to the second portion.
7. An apparatus as recited in claim 1, wherein the actuator comprises one of a pager motor, a voice coil, a solenoid actuator, a stepper motor, a piezo-electric actuator, a hydraulic actuator, and a pneumatic actuator.

8. An apparatus as recited in claim 1, further comprising a processor in communication with the keyboard device and the actuator, the processor operable to receive an input responsive to the key entry on the keyboard device and output the control signal to the actuator.
9. An apparatus as recited in claim 9 wherein the host computer further operates to output an auxiliary control signal to the actuator that is related with an input from an auxiliary input device, the actuator outputting an auxiliary haptic feedback to the housing.
10. An apparatus as recited in claim 10 wherein the auxiliary input device comprises one of a mouse, a trackball, a joystick, and a touchpad.
11. An apparatus as recited in claim 1 further comprising a processor in communication with the keyboard device and the actuator, the processor operable to generate the control signal based on a command related to the key entry on the keyboard device and to output the control signal to the actuator.
12. An apparatus, comprising:
 - a processor;
 - a keyboard device, in communication with the processor; and
 - an actuator, coupled to the keyboard device;
 - the actuator configured to receive a control signal from the processor responsive to a key entry on the keyboard device and output a force to the actuator that effects haptic feedback.
13. An apparatus as recited in claim 12, wherein the processor is included in a host computer.

14. An apparatus as recited in claim 12, wherein the processor is coupled to the keyboard device is operable to receive a command related to the key entry on the keyboard device and convert the command to the control signal.
15. An apparatus as recited in claim 12, wherein the actuator comprises one of an inertial actuator, a pager motor, a voice coil, a solenoid actuator, a stepper motor, a piezo-electric actuator, a hydraulic actuator, and a pneumatic actuator.
16. An apparatus as recited in claim 12, further comprising at least one compliant element coupled to the keyboard device and adapted to support the keyboard device on a surface.